CONTENTS TO VOLUME IV.

JULY, 1914.

On the Growth and Decay of Color Sensations in Flicker Photometry. M. LUCKIESH.. 1
The Maintenance of Vibrations. C. V. RAMAN..... 12
The Luminescence of Kunzite. E. L. NICHOLS and H. L. HOWES..... 18
Note on the Relation between the Emission Spectrum of a Compound and its Absorption Spectrum in Solution. ALBERT K. CHAPMAN..... 28
Some Brush Discharge Phenomena Produced by Continuous Potentials. STANLEY P. FARWELL..... 31
The Reproduction and Measurement of Very Short Intervals of Time. JOHN COULSON 40
Note on Evidence for Electron Atmosphere. F. F. HOUSEHOLDER..... 47
Wave-Length-Sensibility Curves for Light Sensitive Selenium and their Significance. F. C. BROWN and L. L. SIEG..... 48
High Temperature Measurements with the Stefan-Boltzman Law. C. E. MENDENHALL and W. E. FORSYTHE..... 62
Proceedings of the American Physical Society: 71
Methods of Measuring Time Constants of Low Resistances, *Frank Wenner, Ernest Weibel and F. B. Silsbee;* The Effect of Residual Gases on Contact E. M. F. s and Photo-Currents, *R. A. Millikan and W. H. Souder;* A Direct Determination of "*h*," *R. A. Millikan.*
New Books..... 76

AUGUST, 1914.

The Crystal Forms of Metallic Selenium and Some of their Physical Properties. F. C. BROWN..... 85
On Ponderomotive Force upon a Dielectric which Carries a Displacement Current in a Magnetic Field. ROBERT H. GODDARD..... 99
Determination of e/m from Measurements of Thermionic Currents. SAUL DUSHMAN 121
The Effect of a Longitudinal Magnetic Field on Spark Potentials. ROBERT F. EARHART 135
On the Passage of Cathode Particles through Gases at Low Pressure. L. W. MCKEEHAN 140
The Specific Heat of Solids and the Principle of Similitude. RICHARD CHACE TOLMAN.. 145
New Books..... 154

SEPTEMBER, 1914.

The Temperature Coefficient of Resistance of Metals at Constant Volume and Its Bearing on the Theory of Metallic Conduction. CHARLES A. KRAUS..... 159
Some Effects of Diffraction on Brightness Measurements made with the Holborn-Kurlbaum Optical Pyrometer. A. G. WORTHING and W. E. FORSYTHE..... 163
The Effect of Pressure on the Absorption of Light by Bromine and Chlorine, and its Theoretical Significance. DAVID L. WEBSTER..... 177
On the Asymmetric Emission of Photo-Electrons from Thin Films of Platinum. I. OTTO STUHLMANN, JR..... 195
The Factors which Determine the Quantity of Roentgen Radiation given off by an X-Ray Tube. WHEELER P. DAVEY..... 208
The Mean Depth of Formation of X-Rays in a Platinum Target. LAURA G. DAVEY... 217
A New Design of Flicker Photometer for Laboratory Colored Light Photometry. HERBERT E. IVES and EDW. J. BRADY..... 222

288020

A Study of Contact Potentials and Photo-electric Properties of Metals in Vacuo: and the Mutual Relation between these Phenomena. ALBERT E. HENNINGS..... 228
On the Nature of the Volta Effect: A Rejoinder. ALBERT E. HENNINGS..... 247
Phase Relations in the Acoustic Shadow of a Rigid Sphere; Phase Difference at the Ears. G. W. STEWART..... 252
The Time Factor in Selenium Resistance. G. E. CRANTHAM..... 259
A Study of the Magnetic Qualities of Stressed Iron and Steel. C. M. SMITH and GEO. W. SHERMAN, JR..... 267
Dioptric Formulæ for Cylindrical Lenses Combined at Oblique Axes. CHARLES SHEARD 274
Rate of Decay of Phosphorescence at Low Temperatures. E. H. KENNARD..... 278
Proceedings of the American Physical Society: 287
The Specific Heats of Mixtures of Alcohol and Water and of Solutions of Non-electrolytes in these Mixtures, *William Francis Magie;* The Villari Critical Point of Ferromagnetic Substances, *S. R. Williams.*

OCTOBER, 1914.

Measurements with a Moving Lamp Photometer. C. C. TROWBRIDGE and W. B. TRUESDELL..... 289
Characteristics of Contact Rectification with a Silicon Carbon Contact. RALPH C. HARTSOUGH..... 306
Magnetic Resistance Change of Pure Iron. R. A. HEISING..... 315
The Thermoelectricity and Magnetostriction of Heusler Alloys. L. O. GRONDAHL..... 325
The Distribution of Thermal Energy. GILBERT N. LEWIS and ELLIOT Q. ADAMS..... 331
On Physically Similar Systems; Illustrations of the Use of Dimensional Equations. E. BUCKINGHAM..... 345
The Vapor Pressure of the Metals Platinum and Molybdenum. IRVING LANGMUIR and C. M. J. MACKAY..... 377
The Spectrum from Mercury Vapor in an Electric Field. C. D. CHILD..... 387
The Approximate Determination of the Resistance of an Irregular Conductor. J. F. H. DOUGLAS..... 391
Proceedings of the American Physical Society: 396
A New Turbidimeter, *P. V. Wells.*
New Books:..... 397

NOVEMBER, 1914.

On the Absorption of Hydrogen by Sodium Potassium Electrodes. R. C. GOWDY..... 401
The Relation between Alpha-Ray Activities and Ranges in the Actinium Series with Notes on the Period and Range of Radioactinium. HERBERT N. MCCOY and EDWIN D. LEMAN..... 409
Determination of the Value of "e," by Millikan's Method, Using Solid Spheres. JOHN YIUBONG LEE..... 420
Diurnal and Annual Variations in Overland Radiotransmission. A. H. TAYLOR..... 435
A Determination of Avogadro's Constant N from Measurements of the Brownian Movements of Small Oil Drops Suspended in Air. HARVEY FLETCHER..... 440
Color Analyses of Two Component Mixtures. L. A. JONES..... 454
The Influence of Annealing on the Characteristics of Light Sensitive Selenium. E. O. DIETERICH..... 467

DECEMBER, 1914.

A Contrast Equality Photometer. A. H. PFUND..... 477
The Hall Effect and Allied Phenomena in Silicon. O. E. BUCKLEY..... 482
Experiments on the Production and Measurement of High Vacua. J. W. WOODROW.. 491
A Comparison of the Longitudinal and Transverse Joule Magnetostrictive Effects in the Same Specimens of Steel and Nickel. S. R. WILLIAMS..... 498

Wave-Length-Sensibility Curves of Certain Crystals of Metallic Selenium; and a Partial Explanation of the Complexity of Light-Action in Selenium Cells. L. P. SIEG and F. C. BROWN 507
On the Silvering of Quartz Fibers by the Cathode Spray. HORATIO B. WILLIAMS 517
Note on the Direct Determination of h. O. W. RICHARDSON 522
Temperature Distribution in an Incandescent Lamp Filament in the Neighborhood of a Cooling Junction. A. G. WORTHING 52
The Thermal Conductivities of Tungsten, Tantalum and Carbon at Incandescent Temperatures by an Optical Pyrometer Method. A. G. WORTHING 535
Proceedings of the American Physical Society: 544
Minutes of the Seventy-Third Meeting; A Comparison of Stellar Radiometers and Radiometric Measurements on Stars, *W. W. Coblentz;* The Emissivity of Metals and Oxides, II: Measurements with the Micropyrometer, *G. K. Burgess and R. G. Waltenberg;* Electrostatic Measurement of Single Electrode Potentials, *A. W. Ewell;* Some Applications of Simpson's Rule in Integrating Periodic Functions, *Frederick Bedell and Ralph Bown;* The Electric Resolution of the Series Lines in the Mercury Spectrum, *George Wendt and Reinhard A. Wetzel;* The Transverse Stark Effect upon Aluminum Doublets, *Reinhard A. Wetzel;* The Total Emissivity of Platinum and the Relation between Total Emissivity and Resistivity, *Paul D. Foote*; An Achromatoscope, *S. R. Williams.*
New Books 552
Errata and Addenda 561
Index 562